

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-488-1  
Relating to Exemptions Under Section 27156  
of the Vehicle Code

MAGNA CHARGER CORPORATION  
GENERAL MOTORS SUPERCHARGER KIT

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Section 39515 and Section 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the installation of the General Motors Supercharger kit manufactured and marketed by Magna Charger Corporation of 3172 Bunsen Avenue, Unit D, Ventura, California 93003 has been found not to reduce the effectiveness of required motor vehicle pollution control devices and, therefore, is exempt from the prohibitions of Section 27156 of the California Vehicle Code for those vehicle applications as listed in the Exhibit, which is attached hereto and incorporated herein.

The General Motors Supercharger Kit includes the following main components: Eaton supercharger with a 3.0" pulley, intake manifold plenum, throttle body adapter and FCC1 frequency calibrator. The throttle body is moved to the supercharger inlet. All other emission-related components are in the stock location.

This Executive Order shall not apply to any Magna Charger General Motors Supercharger Kit advertised, offered for sale, sold with, or installed on a new motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

This Executive Order is valid provided that the installation instructions for the supercharger will not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer.

Changes made to the design or operating conditions of the device, as exempted by the Air Resources Board (ARB), that adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of this device using any identification other than that shown in this Executive Order or marketing of this device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the ARB.

This Executive Order does not constitute any opinion as to the effect that the use of this device may have on any warranty either expressed or implied by the vehicle manufacturer.

This exemption is issued based on submitted emissions test data from an independent laboratory which showed that the supercharger kit did not adversely affect exhaust emissions of the tested vehicle. The test results are shown below.

### **Independent Laboratory Test Results**

#### 1999 5.7L GMC Yukon 1500

	<u>NMOG</u>	<u>CO</u>	<u>NOX</u>	<u>HCHO</u>
Device (g/mi) with df's applied	0.100	2.1	0.2	0.001
Standard (g/mi)	0.160	4.4	0.4	0.018

Test results showed that the supercharger kit when installed on the vehicle did not cause tailpipe emissions to exceed the vehicle's applicable emission standards during the Cold Start CVS-75 Federal Test Procedure. This Executive Order is also based on the On-Board Diagnostic II (OBD II) testing conducted on the same test vehicle. Test data showed that the supercharger kit when installed on the vehicle did not affect the vehicle's ability to perform its OBD II monitoring.

However, the ARB finds that reasonable grounds exist to believe that use of the Magna Charger Corporation's General Motors Supercharger Kit may adversely affect emissions of motor vehicles when operating under conditions outside the parameters of the previously prescribed test procedures. Accordingly, the ARB reserves the right to conduct additional emission tests, in the future, as such tests are developed, that will more adequately measure emissions from all cycle phases. If such test results demonstrate that the supercharger kit adversely affects emissions during off-cycle conditions (defined as those conditions which are beyond the parameters of the Cold-Start CVS-75 Federal Test Procedure), this Executive Order shall be effectively rescinded as of the date the test results are validated. Further, if such test results or other evidence provides the ARB with reason to suspect that the supercharger kit will affect durability of the emission control systems, Magna Charger Corporation shall be required to submit durability data to show that the durability of the vehicle emission control system is not, in fact, affected and/or that the add-on modified part demonstrates adequate durability.

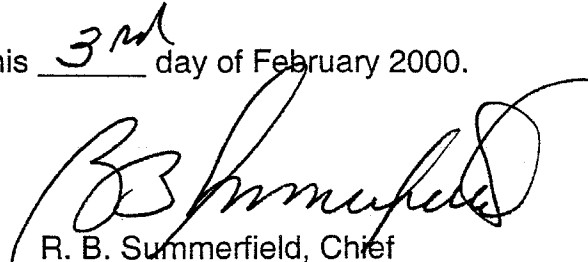
In addition to the foregoing, the ARB reserves the right in the future to review this Executive Order and the exemption provided herein to assure that the exempted add-on or modified part continues to meet the standards and procedures of Title 13, California Code of Regulations, Section 2222, et seq.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF MAGNA CHARGER CORPORATION'S GENERAL MOTORS SUPERCHARGER KIT.

No claims of any kind, such as "Approved by the Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communication.

Violation of any of the above conditions shall be grounds for revocation of this order. The order may be revoked only after ten day written notice of intention to revoke the order, in which period the holder of the order may request in writing a hearing to contest the proposed revocation. If a hearing is requested, it shall be held within ten days of receipt of the request and the order may not be revoked until a determination after hearing that grounds for revocation exist.

Executed at El Monte, California, this 3<sup>rd</sup> day of February 2000.



R. B. Summerfield, Chief  
Mobile Source Operations Division



## General Motors Vehicle E.O. Application - 01-20-00

### SUPERCHARGER SYSTEM

### EXHIBIT

Part Number	Years	Applications	Engines	Supercharger displacement (c.i.)
10-57-001	1996-'00	<b>Chevrolet:</b> 1500/2500/3500 Pickup, Tahoe, Suburban, Full-size Van <b>GMC:</b> 1500/2500/3500 Pickup, Yukon, Denali, Suburban, Full-size Van <b>Cadillac:</b> Escalade	5.7	90
10-43-001	1996-'00	<b>Chevrolet:</b> S-10, S-10 Blazer, T-10, T-10 Blazer, Astro Van <b>GMC:</b> S-15, S-15 Jimmy, T-15, T-15 Jimmy, Safari Van	4.3	90
10-38-001	1995-'00	<b>Buick:</b> Century, Regal, LeSabre, Park Avenue <b>Chevrolet:</b> Camaro, Lumina, Van <b>Oldsmobile:</b> Intrigue <b>Pontiac:</b> Firebird, Formula, Trans Am, Bonneville, Grand Prix	3.8	90
10-34-001	1996-'00	<b>Buick:</b> Century, Regal <b>Chevrolet:</b> Trans Sport APV, Lumina, Venture APV, Impala, Malibu, <b>Oldsmobile:</b> Silhouette, Alero <b>Pontiac:</b> Montana, Grand Prix, Grand Am	3.4	62
10-31-001	1996-'00	<b>Buick:</b> Century, Regal, Skylark <b>Chevrolet:</b> Trans Sport APV, Lumina, Venture APV, Impala, Malibu, Monte Carlo <b>Oldsmobile:</b> Silhouette, Alero, Achieva, Cutlass <b>Pontiac:</b> Montana, Grand Prix, Grand Am	3.1	62
10-24-001	1995-'00	<b>Buick:</b> Skylark <b>Chevrolet:</b> Cavalier, Malibu, <b>Oldsmobile:</b> Achieva, Alero <b>Pontiac:</b> Sunfire, Grand Am	2.4	62
10-22-001	1992-'00	<b>Chevrolet:</b> Cavalier, S-10, <b>Pontiac:</b> Sunfire	2.2	45

State of California  
AIR RESOURCES BOARD

EVALUATION OF MAGNA CHARGER CORPORATION'S  
GENERAL MOTORS SUPERCHARGER KIT  
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE  
SECTION 27156 IN ACCORDANCE WITH SECTION 2222,  
TITLE 13, OF THE CALIFORNIA CODE OF REGULATIONS

February 2000

by

Mobile Source Operations Division  
Aftermarket Parts Section  
9528 Telstar Avenue  
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(This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.)

## SUMMARY

Magna Charger Corporation of 3172 Bunsen Avenue, Unit D, Ventura, California 93003, has applied for exemption from the prohibitions in Section 27156 of the California Vehicle Code for the General Motors Supercharger Kit for those vehicles listed in the Appendix.

Magna Charger Corporation has submitted a complete application with all the required information. Based on the test results from exhaust emission tests performed at an independent laboratory on a 5.7L 1999 GMC Yukon 1500, staff concludes that Magna Charger Corporation's General Motors Supercharger Kit will not adversely affect exhaust emissions from vehicles for which an exemption is requested.

The staff recommends that Magna Charger Corporation be granted an exemption from the prohibitions in Vehicle Code Section 27156 and that Executive Order D-488-1 be issued.

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EVALUATION OF MAGNA CHARGER CORPORATION'S  
GENERAL MOTORS SUPERCHARGER KIT FOR  
EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE  
SECTION 27156 IN ACCORDANCE WITH SECTION 2222,  
TITLE 13, OF THE CALIFORNIA CODE OF REGULATIONS

I. INTRODUCTION

Magna Charger Corporation of 3172 Bunsen Avenue, Unit D, Ventura, California 93003, has applied for an exemption from the prohibitions of California Vehicle Code Section (VC) 27156 for the vehicles listed in the Appendix. Magna Charger Corporation has submitted a completed application and all the required information, as well as exhaust emissions test data from a 1999 5.7L GMC Yukon 1500 which was tested in Los Angeles, California at the Automotive Club of Southern California (ACSC).

II. CONCLUSIONS

Based on the submitted information and the results from exhaust emissions tests performed at ACSC, the staff has determined that Magna Charger Corporation's General Motors Supercharger Kit will not have any adverse effects on the exhaust emissions from vehicles for which the exemption is requested.

III. RECOMMENDATION

The staff recommends that Magna Charger Corporation be granted an exemption from the prohibitions in California Vehicle Code Section 27156 for those vehicles listed in the Appendix and that Executive Order D-488-1 be issued.

IV. DEVICE DESCRIPTION

The Magna Charger Corporation General Motors Supercharger Kit is designed for installation on the vehicles/engines listed in the Appendix.



The kit operates in conjunction with the original equipment manufacturer's (OEM) computer controlled fuel injected system and emission control systems already certified with the stock engine.

The purpose of supercharging an engine is to increase its volumetric efficiency and power output at particular engine loads and throttle openings. At light engine loads and small throttle openings, power output is the same as a normally aspirated engine. At heavy engine loads and increased throttle openings, the manifold pressure is increased by the supercharger allowing more air and fuel to enter the engine, resulting in a higher power output. The supercharger is driven utilizing the engine's standard serpentine belt loop system.

The Supercharger used for this kit is an Eaton roots type blower, designed to have a maximum boost of 5 psi. Boost is limited only by the diameter of the input pulley which is 3 inches. Installation of the kit does not require any major modifications to the stock General Motors engines, except for the new intake manifold components and the relocation of the factory throttle body which is moved to the supercharger inlet. The EGR is in the stock location while the PCV and the Evaporative purge line are in the stock location relative to the throttle body. The stock air cleaner is utilized with the supercharger installation and is maintained in the stock location. The FCC1 Frequency Calibrator is designed to modify the output of frequency of the air flow meter in the vehicle. The FCC1 is calibrated to work under open loop conditions only to add fuel for the proper air/fuel mixture. New parts include the manifold adapter plate, throttle body adapter for the PCV, inlet and outlet plenum and the FCC1 frequency calibrator. All the necessary hardware needed to install the supercharger is included with the kit.

V. DISCUSSION

A 1999 GMC Yukon 1500 equipped with a 5.7 liter fuel injected engine was used for the evaluation of the supercharger kit. The exhaust emission test was performed at the Automobile Club of Southern California laboratory. The testing consisted of one CVS-75 Federal Test Procedure (FTP) in the modified (supercharger kit installed) configuration along with an On-Board Diagnostic (OBD II) systems check to demonstrate Magna Charger Corporation's supercharger's compatibility with the vehicle's OBD II system. The dynamometer inertia weight and horsepower settings were 5500-lbs and 14.3-hp, respectfully. A summary of the test results are shown below:

**Automobile Club of Southern California**  
(Based on Cold-Start CVS-75 FTP)  
GMC Yukon 1500 with a 5.7L Engine  
Exhaust Emission Test Results (gm/mi)

	<u>NMOG</u>	<u>CO</u>	<u>NOX</u>	<u>HCHO</u>
Device with df's applied	0.100	2.1	0.2	0.001
Standard	0.160	4.4	0.4	0.018

The test results from the exhaust emission tests show that the vehicle's emission levels with the Magna Charger Corporation's supercharger installed meet the applicable emissions standards and comply with the requirements for "Exemption of Add-On and Modified Parts." The ARB did not perform testing to confirm the emission test results submitted by the applicant. However, ARB staff evaluated the impact of the supercharger on the OBD II system. Scan tool testing confirmed that the headers did not affect the vehicle's ability to perform OBD II system monitoring. The staff concludes that the installation of the Magna Charger Corporation's supercharger will not have an adverse effect on exhaust emissions on the vehicles for which the exemption is requested. Magna Charger Corporation has submitted all the required information and fulfilled the requirements for an exemption.

## APPENDIX



## General Motors Vehicle E.O. Application - 01-20-00

### SUPERCHARGER SYSTEM

### APPENDIX

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